Troubleshooting CPU Switch Module Problems

This chapter describes how to troubleshoot CPU switch module problems. This chapter includes the following sections:

2.1 Overview

The Cisco ONS 15530 supports two CPU switch modules for redundancy, one in active mode and the other in hot-standby mode. CPU switch modules are installed in slot 5 and slot 6. Each CPU switch module has a processor, a switch fabric, a clock, an Ethernet switch for communication between CPU switch modules and with the LRC (line card redundancy controller) on the OADM modules and line cards, and an SRC (switch card redundancy controller). The active CPU switch module controls the system. All LRCs in the system use the system clock and synchronization signals from the active CPU switch module. Interfaces on the CPU switch modules permit access by 10/100 Ethernet, console terminal, or modem connections.

Note For information on slot assignments, CPU switch module LEDs, alarm condition clear and reset button, interrupt clear and reset button, NME LEDs, and cabling, refer to the *Cisco ONS 15530 Hardware Installation Guide*. For default configuration of the various modules, refer to the *Cisco ONS 15530 Configuration Guide and the Cisco ONS 15530 Command Reference.*

2.2 Initial Troubleshooting Checklist

Follow this initial checklist before proceeding with the troubleshooting procedures:

- Issue the **show running-config** command to check the running configuration.
- Ensure the LEDs on the CPU switch modules show the proper state.
- Ensure the Ethernet and Console cables are connected properly.
- Issue the **show facility-alarm status** command to check for CPU switch module, fan, or power supply alarms.
- Issue the **show hardware detail** command to verify the CPU switch module functional image.
- Ensure online and power-on diagnostics do not report any alarms or failures for the CPU switch module.
- Ensure the active and standby CPU switch modules are compatible.
- Ensure the active and standby CPU switch module have same version of software installed.

2.3 Verifying CPU Switch Module Configuration

To display the CPU switch module configuration and status, issue the **show running-config** command.

Command	Purpose
show running-config	Shows all components of the CPU switch module running a configuration.

The following example shows the **show running-config** command, which displays all the components of the CPU switch module configuration. For a detailed description of this command, refer to the *Cisco IOS Configuration Fundamentals Command Reference*.

```
Switch# show running-config
Building configuration...

Current configuration : 2971 bytes
!
version 12.2
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
service internal
!
hostname top
!
boot system bootflash:ons15530-i-mz.sar-f-rep
boot bootldr bootflash:ons15530-i-mz.sar-f-rep
logging snmp-authfail
logging queue-limit 100
logging buffered 10000 debugging
enable password
!
diag online
no diag power-on
```

```
ip subnet-zero
ip ftp source-interface FastEthernet0
ip ftp username
ip ftp password
no ip domain-lookup
!
!
!
<information deleted>

control-plane
!
!
redundancy
 associate group sp
   aps working Wavepatch4/0/0
   aps protection Wavepatch4/0/1
   aps enable
 standby privilege-mode enable
!
!
interface Loopback0
 no ip address
!
interface FastEthernet0
 ip address 172.25.22.125 255.255.255.0
 duplex auto
 speed auto
 no cdp enable
!
interface Fastethernet-sby0
 no ip address
 shutdown
 duplex auto
 speed auto
!
<information deleted>
!
router ospf 100
 log-adjacency-changes
 redistribute connected subnets
 redistribute static subnets
!
ip classless
ip route 0.0.0.0 0.0.0.0 FastEthernet0
ip route 172.25.18.0 255.255.255.0 FastEthernet0
no ip http server
!
!
!
snmp-server engineID local 800000090300000016447A1D1
snmp-server community public RW
snmp-server location san-jose-dev-test
snmp-server contact Edward.Ding : eding@cisco.com
snmp-server enable traps snmp authentication warmstart
snmp-server enable traps tty
snmp-server enable traps bgp
snmp-server enable traps oscp
snmp-server enable traps config
snmp-server enable traps syslog
snmp-server enable traps entity
snmp-server enable traps fru-ctrl
snmp-server enable traps topology throttle-interval 60
snmp-server enable traps rf
```

```
snmp-server enable traps aps
snmp-server enable traps patch
snmp-server enable traps alarms
banner motd ^C
*****^C
alias associate-group g400 ag400
!
line con 0
 exec-timeout 0 0
line aux 0
line vty 0 4
 exec-timeout 0 0
 password lab
 login
 length 0
 width 0
!
exception core-file /tftpboot/eding/CORE/h3
exception protocol ftp
exception dump 172.20.46.50
end
```

2.4 Recovering a Lost Password

This section describes the procedure to recover a lost login or to enable a password. The procedure differs depending on the platform and the software used, but in all cases, password recovery requires that the system be taken out of operation and powered down.

If you need to perform the following procedure, make certain that there are secondary systems that can temporarily serve the functions of the system undergoing the procedure. If this is not possible, advise all potential users and, if possible, perform the procedure during low-use hours.

Note Make a note of your password, and store it in a secure place.

All of the procedures for recovering lost passwords depend on changing the configuration register of the system. This is done by reconfiguring the system software.

More recent Cisco platforms run from Flash memory or are netbooted from a network server and can ignore the contents of NVRAM (nonvolatile random-access memory) when booting. By ignoring the contents of NVRAM, you can bypass the configuration file (which contains the passwords) and gain complete access to the system. You can then recover the lost password or configure a new one.

Note If your password is encrypted, you cannot recover it. You must configure a new password.

Follow these steps to recover a password:

Step 1 Enter the **show version** command and the configuration register value in the privileged EXEC mode. The default value is 0x2102.

Step 2 Power up the Cisco ONS 15530.

Step 3 Press the **Break** key sequence or send a break signal, which is usually **^] w**ithin 60 seconds of turning the system on. If you do not see the > prompt with a system name, the terminal is not sending the correct break signal. In that case, check the terminal or terminal emulation setup.

Step 4 Enter the **confreg** command at the > prompt.

Step 5 Answer **yes** to the `Do you wish to change configuration [y/n]?` prompt.

Step 6 Answer **no** to all the questions that appear until you reach the `Ignore system config info [y/n]` prompt. Answer **yes**.

Step 7 Answer **no** to the remaining questions until you reach the `Change boot characteristics [y/n]?` prompt. Answer **yes**.

Step 8 Enter **2** at the `enter to boot:` prompt.

Step 9 Answer **no** to the `Do you wish to change configuration [y/n]?` prompt.

Step 10 Enter the **reset** command at the `rommon>` prompt.

Step 11 Enter the **enable** command at the `Switch>` prompt. You are in enable mode and see the `Switch#` prompt.

Step 12 Enter the **show startup-config** command to view your password.

Step 13 Proceed to Step 16 if your password is clear text. Or, continue with Step 14 if your password is encrypted.

Step 14 Enter the **configure memory** command to copy the NVRAM into memory if your password is encrypted.

Step 15 Enter the **copy running-config startup-config** command.

Step 16 Enter the **configure terminal** command.

Step 17 Enter the **enable secret** *password* command.

Step 18 Enter the **config-registe**r *value* command, where *value* is whatever value you entered in Step 1.

Step 19 Enter the **exit** command to exit configuration mode.

Step 20 Enter the **copy running-config startup-config** command.

Step 21 Enter the **reload** command at the prompt.

2.5 Verifying NME Interface Configurations

The administration interfaces provide simple command-line interfaces to all internal management and debugging facilities of the CPU switch module. To manage and debug the CPU switch module, you can use the NME (network management Ethernet) interface, the console port, and the auxiliary port.

For cable connection information for each of these interface ports, refer to the *Cisco ONS 15530 Hardware Installation Guide*. For initial configuration information, refer to the *Cisco ONS 15530 Configuration Guide and the Cisco ONS 15530 Command Reference*.

The NME interface has a full duplex, auto sensing connection with troubleshooting LEDs on the CPU switch module faceplate.

You can configure and monitor the NME connection using the CLI. The NME connection appears in the configuration as FastEthernet 0 or FastEthernet-sby 0 depending on the slot where the CPU switch module is installed.

To display the NME FastEthernet module configuration and status, use the following commands:

Command	Purpose
show interfaces FastEthernet 0	Displays the status of the physical interface.
show controllers	Displays the interface memory management and error counters on the FastEthernet interface.

Follow these steps to verify the NME interface:

Step 1 Issue the **show interfaces FastEthernet 0** *slot/subcard/port* command to check the NME interface configuration.

```
Switch# show interfaces FastEthernet 0
→ FastEthernet0 is up, line protocol is up
    Hardware is Gt96k FE, address is 0009.7c1a.cb50 (bia 0009.7c1a.cb50)
    Internet address is 172.25.22.125/24
    MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,
       reliability 255/255, txload 1/255, rxload 1/255
    Encapsulation ARPA, loopback not set
    Keepalive set (10 sec)
→   Half-duplex, 100Mb/s, 100BaseTX/FX
    ARP type: ARPA, ARP Timeout 04:00:00
→   Last input 00:00:00, output 00:00:06, output hang never
    Last clearing of "show interface" counters never
    Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
    Queueing strategy: fifo
    Output queue: 0/40 (size/max)
    5 minute input rate 3000 bits/sec, 5 packets/sec
    5 minute output rate 0 bits/sec, 0 packets/sec
       131803 packets input, 8271274 bytes
       Received 131333 broadcasts (0 IP multicast)
       0 runts, 0 giants, 0 throttles
→   0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
       0 watchdog
       0 input packets with dribble condition detected
       3254 packets output, 200502 bytes, 0 underruns
→   0 output errors, 0 collisions, 2 interface resets
→   0 babbles, 0 late collision, 0 deferred
→   0 lost carrier, 0 no carrier
→   0 output buffer failures, 0 output buffers swapped out
```

Step 2 Check the FastEthernet field to see whether the interface is up. If it is down, check for the following:

- Disconnected or faulty cabling. Check cables.
- Hardware failure. Swap hardware.

If administratively down, the interface has been administratively taken down. Issue the **no shutdown** interface configuration command to reenable the interface.

Step 3 Check the line protocol field to see whether the status is up.

If the interface is down, the line protocol software processes might have determined that the line is unusable or the local or remote interface might be misconfigured. See if the interface can be brought up by following the recommendations in Step 2.

Step 4 Check the duplex mode field. It should match the speed of the interface and be configured as auto-negotiation.

Step 5 Check the last input and last output fields. They show the number of hours, minutes, and seconds since the last packet was successfully received or transmitted by the interface.

Step 6 Check the output hang field. It shows the number of hours, minutes, and seconds since the last reset caused by a lengthy transmission.

Step 7 Check the CRC field. The presence of many CRC errors, but not many collisions, indicates excessive noise. If the number of errors is too high, check the cables for damage. If you are using UTP cable, make sure you are using Category 5 cables and not another type, such as Category 3.

Note Errors and the input and output difference should not exceed 0.5 to 2.0 percent of traffic on the interface.

Step 8 Check the collisions fields. These numbers indicate packet collisions and these numbers should be very low. The total number of collisions, with respect to the total number of output packets, should be 0.1 percent or less.

Step 9 Check the late collisions fields. Late collisions should never occur in a properly designed Ethernet network. They usually occur when Ethernet cables are too long or when there are too many repeaters in the network.

Step 10 Check carrier fields. These numbers indicate a lost carrier detect signal and can be caused by a malfunctioning interface that is not supplying the transmit clock signal or by a cable problem. If the system notices that the carrier detect line of an interface is up, but the line protocol is down, it periodically resets the interface in an effort to restart it. Interface resets can also occur when an interface is looped back or shut down.

Step 11 Check the buffer fields. These numbers indicate the number of received packets discarded because there was no buffer space. Broadcast storms on Ethernet networks, and bursts of noise on serial lines, are often responsible for no-input buffer events.

Step 12 Check the FastEthernet field to see whether the interface is up. If it is down, see if the interface can be brought up by following the recommendations in Step 2. If administratively down, the interface has been administratively taken down. Issue the **no shutdown** interface configuration command to reenable the interface.

If you determine that the connection is configured incorrectly, refer to the *Cisco ONS 15530 Configuration Guide*.

In addition, you can use the **show controllers** command to troubleshoot the status of the NME interface configuration:

```
Switch# show controllers fastethernet 0
Interface FastEthernet0
Hardware is GT96K FE ADDR: 62118CA0, FASTSEND: 0, MCI_INDEX: 0
DIST ROUTE ENABLED: 0
Route Cache Flag: 1
 GPIO 2 CONF= 7FFF7FFF
 GPIO 2 IO= 3D003D
 CIU arbit = 2A8
 PHY add register = 0x3E0
 PHY data register = 0xF1F003A
 Port Configuration Register= 0x80
   ENABLE HT8K HMOD0
 Port Configuration Extend Register= 0xCD00
   TX1:1 RXPRI=DE(00) ~FLCNTL ~FLNKP MFL64KB E
 Port Command Register= 0x0
 Port Status Register= 0x9
```

```
   100MB HDPX FCTL EN  LNK UP ~PAUSED TX oFF
 Serial Parameter Register= 0x218823
 Hash table pointer= 0x35A83C0
Source ADDR L= 0x0
Source ADDR H= 0x0
SDMA configuration register= 0x2200
   RETX 0 RX BE TX BE FRINT BSIZE 4
SDMA command register= 0x1000080
   SRT TXL EN RX
Interrupt MASK= 0x80003DCD
Interrupt Cause= 0x0

Serial 0 mask 3
Serial 0 cause 0
 IP DIFFSERV P0L= 0x0  IP DIFFSERV P0H= 0x0
 IP DIFFSERV P1L= 0x0  IP DIFFSERV P1H= 0x0
 IP VLAN TAG PRI= 0xF0CC
 IP VLAN TAG PRI= 0xF0CC
 First rxd Q0= 0x35E85A0  Curr rxd Q0= 0x35E85A0
 First rxd Q1= 0x35E88A0  Curr rxd Q1= 0x35E88A0
 First rxd Q2= 0x35E8D00  Curr rxd Q2= 0x35E8D00
 First rxd Q3= 0x35E9160  Curr rxd Q3= 0x35E9160
 First txd Q0= 0x35E99D0  First txd Q1= 0x35E9E00

 gt96kfe_instance=0x6211AA58, registers=0xB4088800
 rx ring entries=64, tx ring entries=128
 rxring0=0x35E8440, rxring1=0x35E88A0, rxring2=0x35E8D00, rxring3=0x35E9160
 malloc rxring0=0x35E8440, rxring1=0x35E88A0, rxring2=0x35E8D00, rxring3=0x35E91
60
 Head rxring0=0xD, rxring1=0x0, rxring2=0x0, rxring3=0x0
 Tail rxring0=0x0, rxring1=0x0, rxring2=0x0, rxring3=0x0
 Shadow rxring0=0x6211ACE0, rxring1=0x6211AE20, rxring2=0x6211AF60, rxring3=0x62
125CA0
 tx_limited=0(128)
 txring0=0x35E95C0, txring1=0x35E9E00
 Head txring0=0x41, txring1=0x0
 Tail txring0=0x41, txring1=0x0
 Tail COUNT txring0=0x0, txring1=0x0

PHY registers:

  Register 0x00:   1000  782D  0040  6212  01E1  40A1  0003  0000
  Register 0x08:
  Register 0x10:   D000  0301  0000  0000  0000  017F  0100  0000
  Register 0x18:   003A  F33E  8F00  FF00  002A  C000  20A0

MIB counters:

bytes_recvd             =11564162
bytes_sent              =214232
frames_recvd            =156732
frames_sent             =3265
total_bytes_recvd       =11564162
total_frames_recvd      =156735
bcast_frames_recvd      =131833
mcast_frames_recvd      =22545
crc_errors              =0
ovr_sized_frames        =0
fragments               =3
jabber                  =0
collision               =0
late_collision          =0
64bytes_frames          =146311
65_127bytes_frames      =8619
```

```
128_255bytes_frames     =1015
256_511bytes_frames     =4056
512_1023bytes_frames    =0
1023_maxbytes_frames    =0
rx_error                =0
dropped_frames          =0
mcast_frames_tx         =0
bcast_frames_tx         =2803
sml_frame_recvd         =0


 Software MAC address filter(hash:length/addr/mask/hits):
  0x00:  0  ffff.ffff.ffff  0000.0000.0000    131803
```

2.6 Troubleshooting CPU Switch Module Memory

To troubleshoot the CPU switch module memory, use the following commands:

Command	Purpose
show memory	Shows statistics about the Cisco ONS 15530 memory, including free pool statistics.
show buffers	Displays statistics for the buffer pools on the Cisco ONS 15530.

Troubleshooting Cisco ONS 15530 CPU switch module memory is the same as troubleshooting any Cisco route processor. Refer to the "Troubleshooting Hardware and Booting Problems" chapter of the *Cisco IOS Internetwork Troubleshooting Handbook* for more information.

If the Cisco ONS 15530 fails, it is sometimes useful to get a full copy of the memory image, called a *core dump*, to identify the cause of the failure. Core dumps are generally only useful to your technical support representative. For troubleshooting information relating to system management and information about creating core dumps, refer to the *Cisco IOS Configuration Fundamentals Command Reference*.

2.7 Verifying Hardware and Software Versions

A common problem is an incompatibility between a hardware module and the Cisco IOS software version needed to perform a particular function. This section describes troubleshooting that problem.

Display the hardware and software versions to ensure that they are the most recent. Very old hardware and software versions (two or three versions back) can have caveats that have been fixed in more recent versions. Use the following EXEC commands to display version information:

Command	Purpose
show version	Displays the software version information.

Command	Purpose
show hardware [**detail**]	Displays detailed hardware information including revision level and version.
show functional-image slot *slot*	Displays functional image information.

To verify hardware and software versions, use the following steps:

Step 1 Issue the **show version** command to display the system software version on the active CPU switch module.

```
Switch# show version

Cisco Internetwork Operating System Software
→ IOS (tm) ONS-15530 Software (ONS15530-I-M), Version 12.2(20030711:0
04939) [sar-f-rep 108]
Copyright (c) 1986-2003 by cisco Systems, Inc.
Compiled Mon 14-Jul-03 14:44 by sar
Image text-base: 0x60010BDC, data-base: 0x60A30000

→ ROM: System Bootstrap, Version 12.1(10r)EV, RELEASE SOFTWARE (fc1)

top uptime is 8 hours, 2 minutes
System returned to ROM by RPR Switchover at 20:01:26 UTC Fri Jun 23 2000
System image file is "bootflash:ons15530-i-mz.sar-f-rep"

cisco ONS15530 (RM7000) processor with 49152K/16384K bytes of memory.
R7000 CPU at 234Mhz, Implementation 39, Rev 2.1, 256KB L2, 2048KB L3 Cache

Last reset from s/w nmi
2 FastEthernet/IEEE 802.3 interface(s)
509K bytes of non-volatile configuration memory.

16384K bytes of Flash internal SIMM (Sector size 256K).
Standby CPU is up
Standby CPU has 49152K/16384K bytes of memory.
error - a Software forced crash, PC 0x602C1830
ONS-15530 Software (ONS15530-I-M), Experimental Version 12.2(20030711:004939) [s
ar-f-rep 108]
Compiled Mon 14-Jul-03 14:44 by sar
Image text-base: 0x60010BDC, data-base: 0x60A30000


Stack trace from system failure:
FP: 0x625BF990, RA: 0x602C1830
FP: 0x625BF9C0, RA: 0x6008DB90
FP: 0x625BF9F8, RA: 0x625BFA88
FP: 0x625BF9F8, RA: 0x602BF5D0
FP: 0x625BFA18, RA: 0x60623578
FP: 0x625BFA60, RA: 0x6062376C
FP: 0x625BFCE8, RA: 0x60620998
FP: 0x625BFD58, RA: 0x6060B7D4

Configuration register is 0x2
```

Step 2 Verify the ROM field. It indicates the release of Cisco IOS software loaded and running on the active CPU switch module.

Step 3 Issue the **show hardware** command to display the hardware revision levels for the CPU switch modules.

```
Switch# show hardware
--------------------------------------------------------------------------------
ONS 15530 Chassis, ETSI Version named Switch, Date: 04:04:48 UTC Sat Jun 24 2000
--------------------------------------------------------------------------------

--------------------------------------------------------------------------------
Back-Plane Information
--------------------------------------------------------------------------------
Orderable Product No. MAC-Address       MAC-Size Serial No.   Mfg. Date  H/W Ver
--------------------- ----------------- -------- ------------ ---------- -------
15530-CHAS-E=         00-09-7c-1a-cb-50 16       TBC06101005  2002/06/24 3.1

--------------------------------------------------------------------------------
Slot Orderable Product No.     Part No.   Rev Serial No.   Mfg. Date  H/W Ver.
---- ------------------------- ---------- --- ------------ ---------- ----------
0/0  PROTO-HAMPTONS-MUX/DEMUX  73-7399-01 2   CAB0603MBAX  01/30/2002 1.0
0/1  PROTO-HAMPTONS-MUX/DEMUX  73-7399-01 2   CAB0603MB91  01/30/2002 1.0
5/*  15530-CPU=               73-6572-06 C0  CNH0651006X  01/21/2003 6.1
6/*  15530-CPU=               73-6572-06 C0  CNH0651006L  01/14/2003 6.1

Power Supply:
Slot Part No.         Rev  Serial No.  RMA No.     Hw Vrs  Power Consumption
---- ---------------- ---- ----------- ----------- ------- -----------------
Power Supply 0 Not present
Unable to read idprom for 1
Power Supply 1 :
               type      : 600W AC
               status    : OK
```

Step 4 Verify that the hardware versions listed in the H/W Ver column for the CPU switch modules in slots 5 and 6 are the same. If the hardware versions are not the same, continue with the "2.8 Verifying Hardware and Software Compatibility" section on page 2-12.

Step 5 Issue the **show hardware detail** command to display detailed information about the CPU switch module hardware, including the functional image versions.

```
Switch# show hardware detail
--------------------------------------------------------------------------------
ONS 15530 Chassis, ETSI Version named Switch, Date: 04:05:37 UTC Sat Jun 24 2000
--------------------------------------------------------------------------------

--------------------------------------------------------------------------------
Back-Plane Information
--------------------------------------------------------------------------------
Slot Number             : N/A
Controller Type         : 0x1106
On-Board Description    : ONS 15530 Chassis, ETSI Version
Orderable Product Number: 15530-CHAS-E=
Board Part Number       : 73-6573-03
Board Revision          : 02
Serial Number           : TBC06101005
Manufacturing Date      : 2002/06/24
Hardware Version        : 3.1
RMA Number              : 0
RMA Failure Code        : 0
MAC Address             : 00-09-7c-1a-cb-50
MAC Address Block Size  : 16

--------------------------------------------------------------------------------
Slot Number             : 0/0
Controller Type         : 0x1108
On-Board Description    : Prototype-Hamptons-MUX/DEMUX
Orderable Product Number: PROTO-HAMPTONS-MUX/DEMUX
Board Part Number       : 73-7399-01
```

```
Board Revision          : 2
Serial Number           : CAB0603MBAX
Manufacturing Date      : 01/30/2002
Hardware Version        : 1.0
RMA Number              : 0x00
RMA Failure Code        : 0x00
-------------------------------------------------------------------------------
Slot Number             : 0/1
Controller Type         : 0x1108
On-Board Description    : Prototype-Hamptons-MUX/DEMUX
Orderable Product Number: PROTO-HAMPTONS-MUX/DEMUX
Board Part Number       : 73-7399-01
Board Revision          : 2
Serial Number           : CAB0603MB91
Manufacturing Date      : 01/30/2002
Hardware Version        : 1.0
RMA Number              : 0x00
RMA Failure Code        : 0x00
-------------------------------------------------------------------------------
Slot Number             : 5/*
Controller Type         : 0x1100
On-Board Description    : ONS 15530 CPU and Switch Board
Orderable Product Number: 15530-CPU=
Board Part Number       : 73-6572-06
Board Revision          : C0
Serial Number           : CNH0651006X
Manufacturing Date      : 01/21/2003
→ Hardware Version      : 6.1
RMA Number              :
RMA Failure Code        :
→ Functional Image Version: 1.43
Function-ID             : 0
-------------------------------------------------------------------------------
Slot Number             : 6/*
Controller Type         : 0x1100
On-Board Description    : ONS 15530 CPU and Switch Board
Orderable Product Number: 15530-CPU=
Board Part Number       : 73-6572-06
Board Revision          : C0
Serial Number           : CNH0651006L
Manufacturing Date      : 01/14/2003
→ Hardware Version      : 6.1
RMA Number              :
RMA Failure Code        :
→ Functional Image Version: 1.43
Function-ID             : 0

Power Supply:
Slot Part No.         Rev  Serial No.  RMA No.     Hw Vrs  Power Consumption
---- ---------------- ---- ----------- ----------- ------- -----------------
Power Supply 0 Not present
Unable to read idprom for 1
Power Supply 1 :
               type      : 600W AC
               status    : OK
```

Step 6 Verify that the Hardware Version and Functional Image Version fields for the CPU switch modules in slots 5 and 6 are the same. If they are not the same, continue with the following process to confirm that they are compatible.

Step 7 Use the **show functional-image** command to display detailed information about the functional images for the route processors, switch processors, and Fast Ethernet interface for the Cisco ONS 15530. The following example shows how to display the functional image for the route processor in slot 4:

```
Switch# show functional-image slot X
```

Step 8 Verify the FunctionalVersion and #HardwareRequired fields to determine the FPGA version and the hardware version required for the FPGA. Compare this with the hardware version using the **show hardware** command output. If the FPGA version does not support the hardware version, download a new FPGA image, upgrade the hardware, or both.

2.8 Verifying Hardware and Software Compatibility

You can verify your hardware and software version compatibility by using the following EXEC command to display CPU switch module compatibility information:

Command	Purpose
show redundancy capability	Displays the software version compatibility information.
show functional-image slot *slot*	Displays functional image information.

To verify hardware and software compatibility of the CPU switch modules and modules, use the following steps:

Step 1 Issue the **show redundancy capability** command to display the system software version compatibility with the various modules installed.

```
Switch# show redundancy capability

CPU capability support

 Active CPU  Sby CPU    Sby Compat        CPU capability description
 ----------- ---------- ----------- ----------------------------------------
→ 48 MB      48 MB   OK          CPU DRAM size
→ 16 MB      16 MB   OK          CPU PMEM size
→ 512 KB     512 KB   OK          CPU NVRAM size
    16 MB      16 MB   OK          CPU Bootflash size
→ 6.1        6.1     OK          CPU hardware major.minor version
→ 1.43       1.43    OK          CPU functional major.minor version

→ Linecard driver major.minor versions, (counts: Active=13, Standby=13)

 Active CPU  Sby CPU   Sby Compat  Drv/Ch/F ID  Driver description
 ---------- ---------- ----------- ----------- ------------------------------
    1.3        1.3     OK          0x1100/0/0  CPU with Switch Fabric
    2.3        2.3     OK          0x1101/0/0  10 Port ESCON line card
    2.1        2.1     OK          0x110A/0/0  8 Port GE-FC line card
    3.1        3.1     OK          0x1105/0/0  2.5G Transparent line card
    1.9        1.9     OK          0x1105/1/0  2.5G Transparent line card
    3.1        3.1     OK          0x1109/0/0  2.5G Transparent line card
    1.9        1.9     OK          0x1109/1/0  2.5G Transparent line card
 Active CPU  Sby CPU   Sby Compat  Drv/Ch/F ID  Driver description
 ---------- ---------- ----------- ----------- ------------------------------
    1.3        1.3     OK          0x1103/0/0  OSC line card
    0.1        0.1     OK          0x1107/1/0  OSC daughter card
    2.1        2.1     OK          0x1102/0/0  10G trunk card
    1.0        1.0     OK          0x110B/0/0  2.5G trunk card
```

```
    2.1        2.1     OK          0x1110/0/0  PSM wdm splitter
    1.1        1.1     OK          0x1100/0/1  ONS15530 Rommon

➔ Software sync client versions, listed as version range X-Y.
  X indicates the oldest peer version it can communicate with.
  Y indicates the current sync client version.
  Sync client counts: Active=6, Standby=6

  Active CPU  Sby CPU   Sby Compat  Cl ID  Redundancy Client description
  ---------- ---------- ----------- ----- -----------------------------------
  ver  1-2   ver  1-2   OK          17    CPU Redundancy
  ver  1-1   ver  1-1   OK          19    Interface Sync
  ver  1-1   ver  1-1   OK          36    MetOpt Password Sync
  ver  1-2   ver  1-2   OK          18    Online Diagnostics
  ver  1-2   ver  1-2   OK          6     OIR Client
  ver  1-1   ver  1-1   OK          27    metopt cm db sync
➔ Backplane IDPROM comparison
  Backplane IDPROM field      Match Local CPU            Peer CPU
  -------------------------- ----- -------------------- --------------------
  idversion                   YES   1                    1
  magic                       YES   153                  153
  card_type                   YES   4358                 4358
  order_part_num_str          YES   15530-CHAS-E=        15530-CHAS-E=
  description_str             YES   ONS 15530 Chassis, ETSI Version
                                                         ONS 15530 Chassis, ETSI
 Version
  board_part_num_str          YES   73-6573-03           73-6573-03
  board_revision_str          YES   02                   02
  serial_number_str           YES   TBC06101005          TBC06101005
  date_of_manufacture_str     YES   2002/06/24           2002/06/24
  deviation_numbers_str       YES   0                    0
  manufacturing_use           YES   0                    0
  rma_number_str              YES   0                    0
  rma_failure_code_str        YES   0                    0
  oem_str                     YES   Cisco_Systems        Cisco_Systems
  clei_str                    YES
  snmp_oid_substr             YES   3.326                3.326
  schematic_num_str           YES   92-4568-03           92-4568-03
  hardware_major_version      YES   3                    3
  Backplane IDPROM field      Match Local CPU            Peer CPU
  -------------------------- ----- -------------------- --------------------
  hardware_minor_version      YES   1                    1
  engineering_use_str         YES
  crc16                       OK    26352                9285
  user_track_string           YES
  diagst                      YES   ^A                    ^A
  board_specific_revision     YES   1                    1
  board_specific_magic_number YES   153                  153
  board_specific_length       YES   56                   56
  mac_address_block_size      YES   16                   16
  mac_address_base_str        YES   00097c1acb50         00097c1acb50
  cpu_number                  OK    0                    1
  optical_backplane_type      YES   255                  255
```

Step 2 Check the CPU memory sizes and versions in the CPU Capability Description column. The numbers in the Active CPU and Sby CPU (Standby CPU) columns should match. If not, check the Sby Compat (Standby Compatibility) column. If this column indicates the values are OK, then these values will function as compatible redundant CPU switch modules. If not, swap the CPU switch modules with versions that are compatible.

Step 3 Check the CPU hardware major.minor versions and CPU functional major.minor versions in the CPU Capability Description column. The numbers in the Active CPU and Sby CPU (Standby CPU) columns should match. If not, check the Sby Compat (Standby Compatibility) columns. If this column indicates the values are OK, then these values will function as compatible redundant CPU switch modules. If not, swap the CPU switch modules with versions that are compatible.

Step 4 Check the information in the Linecard driver section of the display. This section shows the compatibility of the software versions installed on the active and standby CPU switch modules with the various modules installed in the system.

Step 5 Check the Sby Compat (Standby Compatibility) and the Driver description columns. An OK in the Sby Compat column indicates the software version installed on the CPU switch modules supports the drivers on the modules listed.

Step 6 Check the Software sync client version section of the display. The Active CPU, Sby CPU and Redundancy Client description columns indicate the software versions the two CPU switch modules can use to synchronize their configurations. The version range in the display, shown as X-Y, indicates oldest-current peer client versions. For example, if the version lists 1-2, that indicates version 1 is the oldest version that the current version 2 could synchronize with its configuration.

Step 7 Check the Backplane IDPROM comparison section of the display. Check the Match column. This indicates which elements match, are acceptable, or fail. Some elements do not match but the range is acceptable. For example, the crc16 elements fields never match because the information in the IDPROMs of the two CPU switch modules are different so the checksums never match. But they do appear as OK or compatible.

If any of the drivers are not supported or appear as OK, try updating the images installed on the CPU switch modules. Use the information in the "1.10 Checking Release Notes for Workarounds" section on page 1-16 to upgrade to a more recent version. That should solve a CPU switch module image compatibility problem.

2.9 Troubleshooting Redundant CPU Switch Modules

The Cisco ONS 15530 supports fault tolerance by allowing a standby CPU switch module to take over if the active CPU switch module fails. This standby, or redundant, CPU switch module runs in hot-standby mode. In hot-standby mode, the standby CPU switch module is partially booted with the Cisco IOS software; however, no configuration is loaded.

At the time of a switchover, the standby CPU switch module takes over as the active CPU switch module and loads the configuration as follows:

- If the running configurations on the active and standby CPU switch module match, the new active CPU switch module uses the running configuration file.
- If the running configurations on the active and standby CPU switch modules do not match, the new active CPU switch module uses the last saved configuration file in its NVRAM (not the NVRAM of the former active CPU switch module).

The former active CPU switch module then becomes the standby CPU switch module.

Note If the standby CPU switch module is unavailable, a major alarm is reported. Issue the **show facility-alarm status** command to display the redundancy alarm status.

For redundant CPU switch modules to function correctly, your Cisco ONS 15530 CPU switch modules must meet the following requirements:

- Both CPU switch modules must have compatible hardware configurations.
- ROMMON version 12.1(10r)EV.
- Both CPU switch modules must have compatible releases of Cisco IOS software.

A common error you may encounter is the incompatibility of hardware modules and the Cisco IOS software version needed to perform a particular function.

2.9.1 Verifying Hardware and Software Versions of Redundant CPU Switch Modules

To troubleshoot the CPU switch module hardware and software versions for redundancy, use the following commands:

Command	Purpose
show version	Displays the system software version.
show hardware detail	Displays the hardware and software configurations of the active and standby CPU switch modules.
show version	Displays the CPU switch module software version information.
show redundancy	Displays the hardware and software configurations of the active and standby CPU switch module cards.
show redundancy capability	Displays capabilities for the active and standby processors.

To confirm that your system CPU switch modules meet the redundancy requirements, complete the following steps:

Step 1 Use the **show version** command to confirm the system hardware and software status of the active CPU switch module.

```
Switch# show version

  Cisco Internetwork Operating System Software
  IOS (tm) ONS-15540 Software (manopt-M0-M), 12.1(X:X)
  Copyright (c) 1986-2001 by cisco Systems, Inc.
  Compiled Fri 23-Feb-01 15:23 by ffrazer
  Image text-base:0x60010950, data-base:0x604E8000

→ ROM:System Bootstrap, Version 12.1(X:X)
  BOOTFLASH:ONS-15540 Software (manopt-M0-M), 12.1(X:X)

  Switch uptime is 30 minutes
  System returned to ROM by power-on
  System image file is "tftp://test/eng/manopt-m0-mz.010223.6"

  cisco  (QUEENS-CPU) processor with 98304K/32768K bytes of memory.
```

```
R7000 CPU at 234Mhz, Implementation 39, Rev 2.1, 256KB L2, 2048KB L3 Cache

Last reset from power-on
2 Ethernet/IEEE 802.3 interface(s)
509K bytes of non-volatile configuration memory.

20480K bytes of Flash PCMCIA card at slot 0 (Sector size 128K).
16384K bytes of Flash internal SIMM (Sector size 64K).
Configuration register is 0x102
```

Step 2 Verify the ROM field. It indicates the release of Cisco IOS software loaded and running on the active CPU switch module.

Step 3 Use the **show hardware detail** command to compare the hardware versions of the active and standby CPU switch modules.

```
Switch# show hardware detail
----------------------------------------------------------------------------
 named Switch, Date: 04:36:29 UTC Fri Apr 20 2001
----------------------------------------------------------------------------
.
{Information Deleted]
.
----------------------------------------------------------------------------
Slot Number             : 6
Controller Type         : Queens CPU
On-Board Description    : Queens_CPU_PHASE_0
Orderable Product Number: N/A
Board Part Number       : 73-5621-02
Board Revision          : 03
Serial Number           : CAB0505GZHD
Manufacturing Date      : 02/16/2001
→ Hardware Version        : 2.1
RMA Number              : 0x00
RMA Failure Code        : 0x00
Functional Image Version: 1.8

----------------------------------------------------------------------------
Slot Number             : 7
Controller Type         : Queens CPU
On-Board Description    : Queens_CPU_PHASE_0
Orderable Product Number: N/A
Board Part Number       : 73-5621-02
Board Revision          : 03
Serial Number           : CAB0505GZHV
Manufacturing Date      : 02/16/2001
→ Hardware Version        : 2.1
RMA Number              : 0x00
RMA Failure Code        : 0x00
Functional Image Version: 1.11

----------------------------------------------------------------------------
Back-Plane EEPROM
----------------------------------------------------------------------------
Slot Number             : N/A
Controller Type         : N/A
On-Board Description    :
Orderable Product Number:
Board Part Number       :
Board Revision          :
Serial Number           :
Manufacturing Date      : 01/01/2000
Hardware Version        : 0.0
RMA Number              : 0x00
```

```
RMA Failure Code        : 0x00
Optical Back-Plane Type : Unknown Optical Backplane
MAC Address             : 00-ab-00-00-00-
MAC Address Block Size  : 1

--------------------------------------------------------------------------------
Power-Supply Module
--------------------------------------------------------------------------------
Primary Power-Supply is : Not working
Backup  Power-Supply is : Not working
```

Step 4 In the slots labeled 6 and 7, compare the Image version fields. These numbers must all match or be compatible, otherwise redundancy will not function correctly on your Cisco ONS 15530. For additional information, see the "2.7 Verifying Hardware and Software Versions" section on page 2-9.

To troubleshoot the hardware and software versions on redundant CPU switch module, use the following steps:

Step 1 Issue the **show version** command to display the system software version on the active CPU switch module as described in the "2.7 Verifying Hardware and Software Versions" section on page 2-9.

Step 2 Issue the **show redundancy summary** command to check the configuration and status of the active and standby CPU switch module.

```
Switch# show redundancy summary

Redundant system information
-----------------------------
Available Uptime:              12 hours, 50 minutes
sysUpTime (switchover clears): 7 hours, 52 minutes
Switchover Count:              5

Inter-CPU Communication State: UP
Last Restart Reason:           Switch over
Reported Switchover Reason:    Active unit failed (error - a Software forced cra
sh, PC 0x602C1830)
Software state at switchover:  STANDBY HOT

→ Last Running Config sync:      7 hours, 52 minutes
  Running Config sync status:    In Sync
→ Last Startup Config sync:      7 hours, 52 minutes
  Startup Config sync status:    In Sync

  This CPU is the Active CPU.
  -------------------------------
→ Slot:                          5
  Time since CPU Initialized:    8 hours, 7 minutes
  Image Version:                 ONS-15530 Software (ONS15530-I-M), Experimental V
  ersion 12.2(20030711:004939) [sar-f-rep 108]
  Image File:                    bootflash:ons15530-i-mz.sar-f-rep
  Software Redundancy State:     ACTIVE
  Hardware State:                ACTIVE
  Hardware Severity:             0

  Peer CPU is the Standby CPU.
  -------------------------------
→ Slot:                          6
  Time since CPU Initialized:    7 hours, 52 minutes
  Image Version:                 ONS-15530 Software (ONS15530-I-M), Version
  12.2(20030711:004939) [sar-f-rep 108]
  Image File (on sby-CPU):       bootflash:ons15530-i-mz.sar-f-rep
  Software Redundancy State:     STANDBY HOT
  Hardware State:                STANDBY
```

```
Hardware Severity:              0
Privilege Mode:                 Enabled
```

Step 3 Verify the Last Running Config sync and Last Startup Config sync fields. They indicate the last time the running configuration and startup configuration were synchronized between the CPU switch modules.

Step 4 Verify the active, standby, and Slot fields. They indicate in which slot the active CPU switch module is configured.

2.9.2 Verifying Redundant CPU Switch Module Functions

To troubleshoot the CPU switch module function capabilities and redundancy, use the following commands:

Command	Purpose
show redundancy capability	Displays capabilities for the active and standby CPU switch modules.
show redundancy clients	Displays internal redundancy software client information, which can be used to debug redundancy software.
show redundancy counters	Displays internal redundancy software counter information, which can be used to debug redundancy software.
show redundancy history	Displays the internal redundancy software history log, which can be useful for debugging redundancy software.
show redundancy running-config-file	Displays the running-config-file on the standby CPU switch module.
show redundancy states	Displays internal redundancy software state information.

Follow these steps to troubleshoot CPU switch module and redundancy capabilities on the system:

Step 1 Issue the **show redundancy capability** command to display capabilities of the active or standby CPU switch modules described in the "2.7 Verifying Hardware and Software Versions" section on page 2-9.

Step 2 Check the CPU memory sizes and versions in the column, CPU capability description. The numbers in the columns Active CPU and Sby CPU (Standby CPU) should match. If not, check the column, Sby Compat (Standby Compatibility). If this column indicates the values are OK then these values will function as compatible redundant CPU switch modules. If not, swap the CPU switch modules with versions that are compatible.

Step 3 Check the CPU hardware and functional major.minor versions in the column, CPU capability description. The numbers in the columns Active CPU and Sby CPU (Standby CPU) should match. If not, check the column, Sby Compat (Standby Compatibility). If this column indicates the values are OK then these values will function as compatible redundant CPU switch modules. If not, swap the CPU switch modules with versions that are compatible.

Step 4 Check the information in the column Driver description. This column lists the hardware drivers on the system components that are supported by the CPU switch module version for both the Active and Sby (Standby) CPU switch modules. OK indicates both versions of CPU switch modules support these drivers.

Step 5 Check the Software sync client version section of the display. The Active and Sby CPU columns Redundancy Client description columns indicate the software versions the two CPU switch modules can use to synchronize their configurations. The version range in the display, shown as X-Y, indicates oldest-current peer client versions. For example, if the version lists 1-2, that indicates version 1 is the oldest version that the current version 2 could synchronize with its configuration.

Step 1 Check the IDPROM comparison section of the display. Check the Match column. This indicates which elements match, are acceptable, or fail. Some elements do not match but the range is acceptable. For example, the crc16 elements fields never match because the information in the IDPROMs of the two CPU switch modules are different so the checksums never match. But they do appear as OK or compatible.

Step 2 Issue the **show redundancy clients** command to display a list of internal redundancy clients.

```
Switch# show redundancy clients

clientID = 0       clientSeq = 0        RF_INTERNAL_MSG
 clientID = 6       clientSeq = 180      OIR Client
 clientID = 7       clientSeq = 190      APS
 clientID = 17      clientSeq = 230      CPU Redundancy
 clientID = 18      clientSeq = 280      Online Diagnostics
 clientID = 19      clientSeq = 300      Interface Sync
 clientID = 27      clientSeq = 330      metopt cm db sync
 clientID = 35      clientSeq = 360      History RF Client
 clientID = 36      clientSeq = 370      MetOpt Password Sync
 clientID = 65000   clientSeq = 65000    RF_LAST_CLIENT
```

Step 3 Issue the **show redundancy counters** command to display internal redundancy software counters.

```
Switch# show redundancy counters

Redundancy Facility OMs
               comm link up = 2
        comm link down down = 1

          invalid client tx = 1
          null tx by client = 0
                tx failures = 1
      tx msg length invalid = 0

      client not rxing msgs = 0
 rx peer msg routing errors = 0
           null peer msg rx = 0
         errored peer msg rx = 0

                 buffers tx = 2668
     tx buffers unavailable = 0
                 buffers rx = 10858
      buffer release errors = 0

 duplicate client registers = 0
  failed to register client = 0
       Invalid client syncs = 0
```

Step 4 Issue the **show redundancy history** command to display internal redundancy software history.

```
Switch# show redundancy history
```

```
4w5d client added: RF_INTERNAL_MSG(0) seq=0
4w5d client added: RF_LAST_CLIENT(65000) seq=65000
00:00:00 client added: History RF Client(35) seq=360
00:00:01 client added: CPU Redundancy(17) seq=230
00:00:02 client added: Interface Sync(19) seq=300
00:00:02 client added: MetOpt Password Sync(36) seq=370
00:00:02 *my state = INITIALIZATION(2) *peer state = DISABLED(1)
00:00:02 RF_PROG_INITIALIZATION(100) RF_INTERNAL_MSG(0) op=0 rc=11
00:00:02 RF_PROG_INITIALIZATION(100) CPU Redundancy(17) op=0 rc=11
00:00:02 RF_PROG_INITIALIZATION(100) Interface Sync(19) op=0 rc=11
00:00:02 RF_PROG_INITIALIZATION(100) History RF Client(35) op=0 rc=11
00:00:02 RF_PROG_INITIALIZATION(100) MetOpt Password Sync(36) op=0 rc=11
00:00:02 RF_PROG_INITIALIZATION(100) RF_LAST_CLIENT(65000) op=0 rc=11
00:00:02 *my state = NEGOTIATION(3) peer state = DISABLED(1)
00:00:02 RF_STATUS_PEER_PRESENCE(400) op=1
00:00:02 RF_STATUS_PEER_PRESENCE(400) CPU Redundancy(17) op=1
00:00:02 RF_STATUS_PEER_PRESENCE(400) Interface Sync(19) op=1
00:00:02 RF_STATUS_PEER_PRESENCE(400) MetOpt Password Sync(36) op=1
00:00:03 RF_STATUS_PEER_COMM(401) op=1
00:00:03 RF_STATUS_PEER_COMM(401) CPU Redundancy(17) op=1
00:00:03 RF_STATUS_PEER_COMM(401) Interface Sync(19) op=1
00:00:03 RF_STATUS_PEER_COMM(401) MetOpt Password Sync(36) op=1
00:15:12 RF_EVENT_PEER_PROG_DONE(506) RF_LAST_CLIENT(65000) op=105
00:15:16 *my state = ACTIVE(13) *peer state = STANDBY HOT(8)

Information deleted-------------------------------------------------------
```

Step 5 Issue the **show redundancy running-config-file** command to display running configuration on the standby CPU switch module.

```
sby-Switch# show redundancy running-config-file
!
version 12.2
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
service internal
!
hostname top
!
boot system bootflash:ons15530-i-mz.sar-f-rep
boot bootldr bootflash:ons15530-i-mz.sar-f-rep
logging snmp-authfail
logging queue-limit 100
logging buffered 10000 debugging
enable password lab
!
diag online
no diag power-on
ip subnet-zero
ip ftp source-interface FastEthernet0
ip ftp username rhino
ip ftp password godzilla
no ip domain-lookup
!
!
!
!
!
Information deleted-------------------------------------------------------
end
^@^@
```

Step 6 Issue the **show redundancy states** command to display internal redundancy software state information.

```
Switch# show redundancy states
➔ my state = 13 -ACTIVE
➔  peer state = 8  -STANDBY HOT
           Mode = Duplex
        Unit ID = 5

     Split Mode = Disabled
   Manual Swact = Enabled
 Communications = Up

   client count = 10
client_notification_TMR = 30000 milliseconds
          keep_alive TMR = 12000 milliseconds
        keep_alive count = 0
    keep_alive threshold = 17
           RF debug mask = 0x0
```

Refer to the *Cisco ONS 15530 Configuration Guide and the Cisco ONS 15530 Command Reference* for the following:

- Configuring CPU switch module redundancy
- Upgrading the software image on the redundant CPU switch module
- Downloading the system image on the CPU switch modules

2.10 Troubleshooting CPU Switch Module Problems

This section includes CPU switch module troubleshooting procedures.

2.10.1 Active CPU Switch Module Boot Failure

Symptom The active CPU switch module fails to boot.

Table 2-1 describes the potential causes of the symptom and the solutions.

Table 2-1 Active CPU Switch Module Boot Failure

Possible Problem	Solution
Auto boot not configured.	Manually boot the valid system image, then issue the **config reg 0x2102** command to configure auto boot.
Invalid boot configuration.	Manually boot the valid system image and check the boot system configuration. Correct the configuration if necessary.

2.10.2 Standby CPU Switch Module Boot Failure

Symptom The standby CPU switch module fails to boot.

Table 2-2 describes the potential causes of the symptom and the solutions.

Table 2-2 Standby CPU Switch Module Boot Failure

Possible Problem	Solution
Auto boot not configured.	Manually boot the valid system image, then issue the **config reg 0x2102** command to configure auto boot.
Invalid boot configuration.	Manually boot the valid system image and check the boot system configuration. Correct the configuration if necessary.
Peer (active) CPU switch module reset.	Issue the **show redundancy history**, **show redundancy state**, **show redundancy events, show redundancy clients,** and the **show buffers** commands and provide the outputs to Cisco technical support.

2.10.3 Unable to Access CPU Switch Module Console

Symptom The CPU switch module console cannot be accessed.

Table 2-3 describes the potential causes of the symptom and the solutions.

Table 2-3 Unable to Access Switch Module Console

Possible Problem	Solution
Console cable.	Verify that the console cable is connected properly, and replace if necessary.
Incorrect termserver setting.	Check the termserver configuration, and correct the settings if necessary.

2.10.4 Unable to Access Enable Mode on Active CPU Switch Module

Symptom The system does not allow access to the enable mode.

Table 2-4 describes the potential causes of the symptom and the solutions.

Table 2-4 Unable to Access Enable Mode

Possible Problem	Solution
Password incorrect.	Perform the password recovery procedure. See the "2.4 Recovering a Lost Password" section on page 2-4.

2.10.5 Unable to Access Enable Mode on Standby CPU Switch Module

Symptom The system does not allow access to the enable mode on the standby CPU switch module.

Table 2-4 describes the potential causes of the symptom and the solutions.

Table 2-5 Unable to Access Enable Mode

Possible Problem	Solution
Password incorrect.	Perform the password recovery procedure. See the "2.4 Recovering a Lost Password" section on page 2-4.
Password synchronization.	Check the image on the active and standby CPU switch modules. Update to the latest image if necessary. If the images are the same, issue the **show tech** and the **show log** cammands and provide the outputs to Cisco technical support.